

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A laser that controls amplified spontaneous emission and/or parasitic light, comprising:

a laser gain medium having polished surfaces that are used to transport pump light by internal reflection throughout said laser gain medium,

a light source directing laser pump light into said laser gain medium,

a layered coating on at least some of said polished surfaces that are used to transport pump light by internal reflection of said laser gain medium,

said layered coating comprising

a ~~reflective~~ first inner material coating layer, said first inner material coating layer comprising a transparent coating, and

~~an a second~~ absorptive and scattering outside material coating layer, said second absorptive scattering outside material coating layer comprising an absorptive layer or a scattering layer or both an absorptive layer and a scattering layer, and

wherein said layered coating is configured to substantially reflect the pump light that strikes the layered coating so as to direct the pump light back into said laser gain medium, and substantially transmit said amplified spontaneous emission and/or parasitic light that strikes the layered coating so as to let this light strike said outside material coating layer of said layered coating where it is scattered or absorbed or both scattered and absorbed.

2. (Currently Amended) The laser of claim 1, wherein said absorptive ~~and~~ scattering outside material coating layer includes a diffuse reflectance material examples of which include powdered BaSO₄, an absorbing film such as Ge, or a roughened surface to reduce the specular reflectivity.

3. (Currently Amended) The laser of claim 1, wherein said absorptive ~~and~~ scattering outside material includes powdered BaSO₄.

4. (Currently Amended) The laser of claim 1, wherein said absorptive ~~and~~ scattering outside material coating layer includes a powdered an absorbing film an example of which includes Ge.

5. (Currently Amended) The laser of claim 1, wherein said absorptive ~~and~~ scattering outside material coating layer includes a roughened surface.

6. (Currently Amended) An end pumped laser, comprising:
a laser light source,
a laser gain element, said laser gain element having enter or exit surfaces through which the laser light is intended to enter or exit the gain element and smooth surfaces other than those enter or exit surfaces through which the laser light is intended to enter or exit the gain element, and
a layered optical coating applied to said smooth surfaces wherein said smooth surfaces serve to substantially reflect pump light that is introduced into said laser gain element and so keep the pump light confined within said laser gain element,
said layered optical coating including
an inner coating layer, said first inner material coating layer comprising a transparent coating, and
an outside material coating layer, said outside material coating layer comprising an absorptive layer or a scattering layer or both an absorptive layer and a scattering layer,

wherein said layered optical coating will preferentially transmit amplified spontaneous emission and parasitic light out of said laser gain element and into said outside material coating layer, and

said outside material coating layer will scatter or absorb or scatter and absorb amplified spontaneous emission and parasitic light that reaches said outside material coating layer so as to prevent it from re-entering said laser gain element.

7. (Currently Amended) A method of producing a laser gain element for amplifying laser light, comprising:

providing said laser gain element with enter or exit surfaces through which the laser light is intended to enter or exit the gain element,

providing said laser gain element with smooth surfaces other than those enter or exit surfaces through which the laser light is intended to enter or exit the gain element,

coating said smooth surfaces with an optical coating so that said smooth surfaces which are in contact with said applied optical coating serve to substantially reflect pump light that is introduced into the gain element and so keep pump light confined within the gain element and

wherein said step of coating said smooth surfaces with an optical coating comprises the steps of

applying an inner coating layer to said smooth surfaces, said inner coating layer comprising a transparent coating, and

~~applied optical coating includes~~ applying an outside material coating layer over said inner coating layer, said outside material coating layer comprising an absorptive layer or a scattering layer or both an absorptive layer and a scattering layer, and

wherein said optical coating will preferentially transmit amplified spontaneous emission and parasitic light out of the gain element and into said outside material coating layer and wherein said outside material coating layer substantially scatters or

absorbs or scatters and absorbs said amplified spontaneous emission and parasitic light that reaches said outside material coating layer so as to prevent said amplified spontaneous emission and parasitic light from re-entering the laser gain medium.

8. (Currently Amended) The laser method of claim 7, wherein said ~~applied~~ said step of applying an outside material coating layer over said inner coating layer comprises applying an optical coating layer that is a diffuse reflectance material examples of which include powdered BaSO₄, an absorbing film an example of which includes Ge, or a roughened surface to reduce the specular reflectivity.